

In re Patent Application of:

BONHOMME

Serial No. 09/993,913

Filed: NOVEMBER 6, 2001

In the Claims:

Claims 1-15 (Cancelled).

15. (Currently amended) A method of estimating an impulse response of an information transmission channel in a signal propagation environment and comprising:

estimating the impulse response based upon a useful number of coefficients of the impulse response, the useful number of coefficients being a function of the signal propagation environment, by

providing an initial estimate of the impulse response based upon a predetermined number of the coefficients,

determining a time domain spreading parameter based upon the initial estimate,

using the time domain spreading parameter to determine the useful number of coefficients, and

providing a final estimate of the impulse response based upon the useful number of coefficients.

16. (Cancelled).

17. (Currently amended) The method of Claim ~~16~~ 15 wherein providing the final estimate comprises correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the

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useful number of coefficients.

18. (Currently amended) The method of Claim ~~16~~ 15 wherein using the time domain spreading parameter to determine the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined spreading parameter values each corresponding to a different time domain spreading of the transmission channel.

19. (Previously presented) A method of estimating an impulse response of an information transmission channel in a signal propagation environment and comprising:

determining a useful number of coefficients of the impulse response as a function of the signal propagation environment based upon a time domain spreading parameter; and
estimating the impulse response based upon the useful number of coefficients.

20. (Previously presented) The method of Claim 19 wherein determining the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined spreading parameter values each corresponding to a different time domain spreading of the transmission channel.

21. (Currently amended) A device for estimating an impulse response of an information transmission channel in a signal propagation environment comprising:

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a processing stage;

said processing stage comprising evaluation means for defining a useful number of coefficients of the impulse response as a function of the signal propagation environment and for estimating the impulse response based upon the useful number of coefficients by

providing an initial estimate of the impulse response based upon a predetermined number of the coefficients,

determining a time domain spreading parameter based upon the initial estimate,

using the time domain spreading parameter to determine the useful number of coefficients, and

providing a final estimate of the impulse response based upon the useful number of coefficients.

Claims 22-24 (Cancelled).

25. (Currently amended) The device of Claim ~~24~~ 21 wherein said ~~second estimating means comprise~~ processing stage further comprises correction means for providing the final estimate by correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined ~~maximum~~ number and the useful number of coefficients.

26. (Currently amended) The device of Claim ~~23~~ 21 wherein said evaluation means comprise:

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a memory having a plurality of predetermined spreading parameter values stored therein each corresponding to a respective time domain spreading of the transmission channel; and
a comparator for comparing the time domain spreading parameter with the predetermined spreading parameter values.

27. (Currently amended) A device for estimating the impulse response of an information transmission channel in a signal propagation environment comprising:

an evaluator for determining a useful number of coefficients of the impulse response as a function of the signal propagation environment by

providing an initial estimate of the impulse response based upon a predetermined number of the coefficients,

determining a time domain spreading parameter based upon the initial estimate, and

using the time domain spreading parameter to determine the useful number of coefficients; and
estimation circuitry for ~~estimating~~ providing a final estimate of the impulse response based upon the useful number of ~~coefficients~~ coefficients.

Claims 28-30 (cancelled).

31. (Currently amended) The device of Claim ~~30~~ 27 wherein said estimation circuitry derives the final estimate by

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correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

32. (Previously presented) The device of Claim 27 further comprising a memory having a plurality of predetermined values of spreading parameters each corresponding to different time domain spreading of the transmission channel stored therein; and wherein said evaluator further comprises a comparator for comparing the time domain spreading parameter with the predetermined values.

33. (Currently amended) A cellular telephone comprising:

an antenna;

a receiver for receiving cellular signals via said antenna from a base station over an information transmission channel in a signal propagating environment; and

a processing stage for estimating an impulse response of the information transmission channel the signal propagation environment and comprising evaluation means for defining a useful number of coefficients of the impulse response as a function of the signal propagation environment, and for estimating the impulse response based upon the useful number of coefficients by

providing an initial estimate of the impulse response based upon a predetermined number of the coefficients,

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determining a time domain spreading parameter based upon the initial estimate,
using the time domain spreading parameter to determine the useful number of coefficients, and
providing a final estimate of the impulse response based upon the useful number of coefficients.

Claims 34-36 (cancelled).

37. (Currently amended) The cellular telephone of Claim 33 wherein said ~~second estimating means comprise~~ processing stage further comprises correction means for correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

38. (Currently amended) A computer-readable medium having computer-executable instructions for estimating an impulse response of an information transmission channel in a signal propagation environment by performing a step comprising:

estimating the impulse response based upon a useful number of coefficients of the impulse response, the useful number of coefficients being a function of the signal propagation environment by

providing an initial estimate of the impulse response based upon a predetermined number of the coefficients,

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determining a time domain spreading parameter based upon the initial estimate, using the time domain spreading parameter to determine the useful number of coefficients, and providing a final estimate of the impulse response based upon the useful number of coefficients.

39. (Cancelled).

40. (Currently amended) The computer-readable medium of Claim ~~39~~ 38 wherein providing the final estimate comprises correcting the first estimate by cancelling a number of coefficients equal to a difference between the predetermined maximum number and the useful number of coefficients.

41. (Currently amended) The computer-readable medium of Claim ~~39~~ 38 wherein using the time domain spreading parameter to determine the useful number of coefficients comprises comparing the time domain spreading parameter with a plurality of predetermined spreading parameter values each corresponding to a different time domain spreading of the transmission channel.